Lab Assignment

Cybersecurity Professional Program

Introduction to Python
for Security

Loops

PY-03-L5
While and Conditions

Lab Objective

Understand how to use loops to determine code flow.

Lab Mission

Implement conditions to control infinite while loops.

Lab Duration

30 – 50 minutes

Requirements

- Basic knowledge of while loops and conditions.

Resources

- Environment & Tools
    - Windows, Linux, MacOS
        - Python3
        - PyCharm

Textbook References

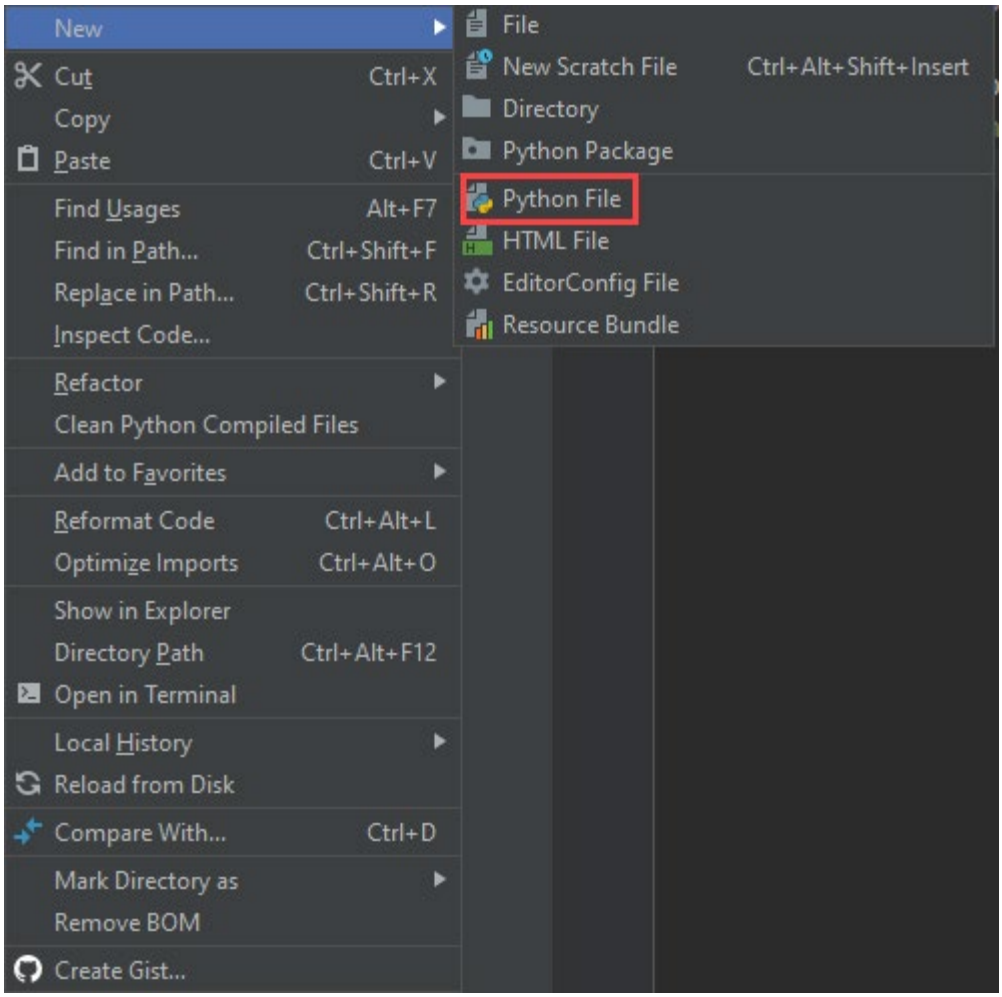
- Chapter 3: Loops
    - Section 2: Loops & Conditions

Lab Task

Create a script that will simulate a shopping experience.

1 Create a new Python file in PyCharm.

Right-click the project you created previously, and select **New → Python File**.



2 Create a variable named "money" and assign it the value 50 (integer).

```
money = 50
```

3 Create a second variable named "shopping_cart" which will be an empty list.

```
money = 50
shopping_cart = []
```

4 Create a dictionary with the following values:

fruits = {"Apple": 5, "Raspberry": 10, "Lemon": 20}

```
money = 50
shopping_cart = []
fruits = {"Apple": 5, "Raspberry": 10, "Lemon": 20}
```

5 Create an infinite **while** loop using the **True** condition.

```
money = 50
shopping_cart = []
fruits = {"Apple": 5, "Raspberry": 10, "Lemon": 20}

while True:
```

6 Within the loop, create a condition that checks if the amount of money assigned in the previous step is less than or equal to 0.

```
money = 50
shopping_cart = []
fruits = {"Apple": 5, "Raspberry": 10, "Lemon": 20}

while True:
    if money <= 0:
```

7 If it is less than or equal to 0, print a thank you message to the user and break the loop.

```
money = 50
shopping_cart = []
fruits = {"Apple": 5, "Raspberry": 10, "Lemon": 20}

while True:
    if money <= 0:
        print("Thanks for shopping!")
        break
```

8 Add an **else** block to the if condition, and ask the user for a fruit of his choice.

Note: Use the ***.title()*** function at the end of the input to cause it to begin with a capital letter.

```
money = 50
shopping_cart = []
fruits = {"Apple": 5, "Raspberry": 10, "Lemon": 20}

while True:
    if money <= 0:
        print("Thanks for shopping!")
        break
    else:
        player_choice = input(f"Select a fruit {fruits}:
").title()
```

9 In the ***else*** block, create a new ***if*** statement to check if the user chose a fruit that exists in the dictionary.

```
money = 50
shopping_cart = []
fruits = {"Apple": 5, "Raspberry": 10, "Lemon": 20}

while True:
    if money <= 0:
        print("Thanks for shopping!")
        break
    else:
        player_choice = input(f"Select a fruit {fruits}:
").title()
        if player_choice in fruits:
```

10 If the user's choice is not in the fruits dictionary, print an error message.

```
money = 50
shopping_cart = []
fruits = {"Apple": 5, "Raspberry": 10, "Lemon": 20}

while True:
    if money <= 0:
        print("Thanks for shopping!")
        break
    else:
        player_choice = input(f"Select a fruit {fruits}:
").title()
        if player_choice in fruits:

        else:
            print("Invalid choice.")
```

11 Create a third ***if*** statement in the user's choice condition that checks if the user has enough money to buy the fruit.

```
money = 50
shopping_cart = []
fruits = {"Apple": 5, "Raspberry": 10, "Lemon": 20}

while True:
    if money <= 0:
        print("Thanks for shopping!")
        break
    else:
        player_choice = input(f"Select a fruit {fruits}:
").title()
        if player_choice in fruits:
            if money >= fruits[player_choice]:
        else:
          print("Invalid choice.")
```

12 If the user cannot afford it, print a message telling the user about that.

```
money = 50
shopping_cart = []
fruits = {"Apple": 5, "Raspberry": 10, "Lemon": 20}

while True:
    if money <= 0:
        print("Thanks for shopping!")
        break
    else:
        player_choice = input(f"Select a fruit {fruits}:
").title()
        if player_choice in fruits:
            if money >= fruits[player_choice]:
            else:
                print("You don't have enough money to make
this purchase.")
        else:
          print("Invalid choice.")
```

13 If the user can afford the fruit, add it to the shopping list variable.

```
money = 50
shopping_cart = []
fruits = {"Apple": 5, "Raspberry": 10, "Lemon": 20}

while True:
    if money <= 0:
        print("Thanks for shopping!")
        break
    else:
        player_choice = input(f"Select a fruit {fruits}:
").title()
        if player_choice in fruits:
            if money >= fruits[player_choice]:
                shopping_cart.append(player_choice)
            else:
                print("You don't have enough money to make
this purchase.")
        else:
          print("Invalid choice.")
```

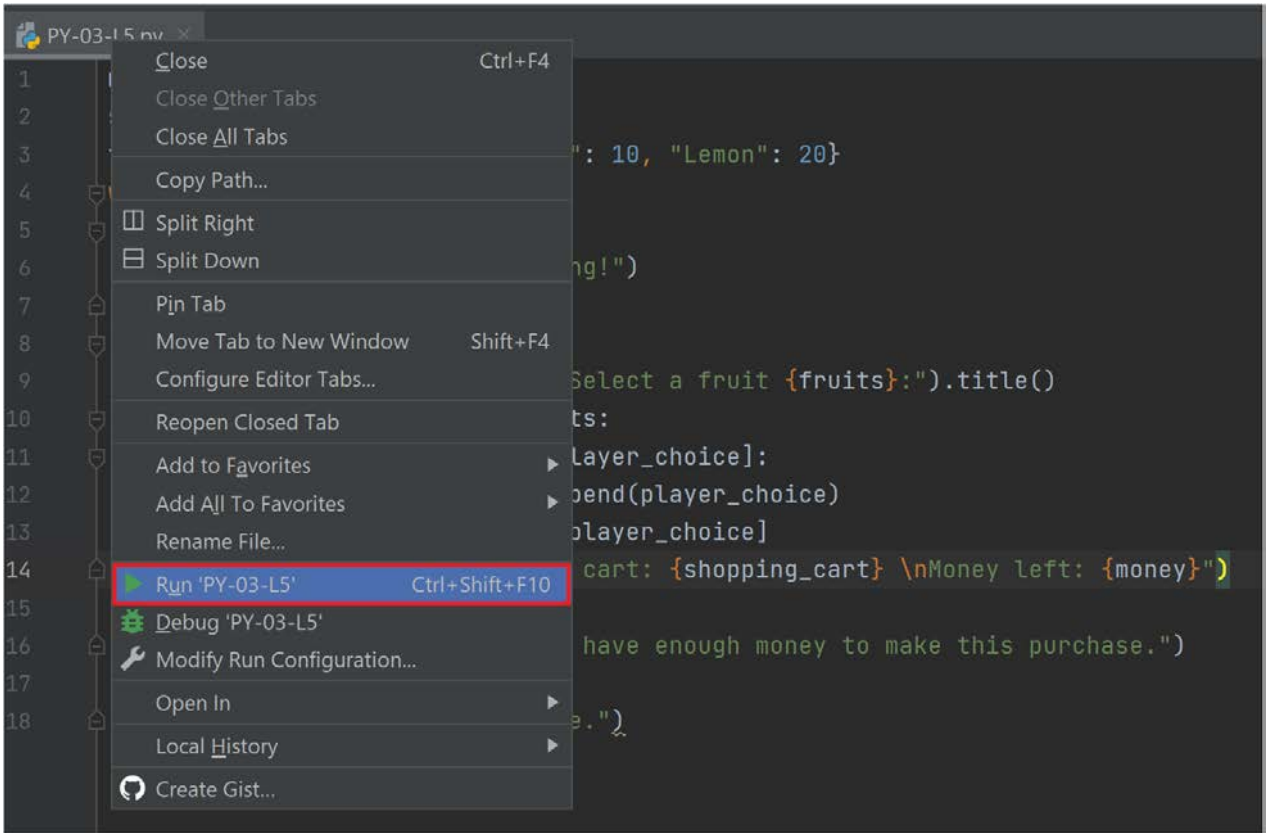
14 Decrease the amount of money available to the user in accordance with the purchased fruit's value.

```
money = 50
shopping_cart = []
fruits = {"Apple": 5, "Raspberry": 10, "Lemon": 20}

while True:
    if money <= 0:
        print("Thanks for shopping!")
        break
    else:
        player_choice = input(f"Select a fruit {fruits}:
").title()
        if player_choice in fruits:
            if money >= fruits[player_choice]:
                shopping_cart.append(player_choice)
                money -= fruits[player_choice]
            else:
                print("You don't have enough money to make
this purchase.")
        else:
          print("Invalid choice.")
```

15 When a fruit is purchased, print the current state of the shopping list and the amount of money the user has left.

```
money = 50
shopping_cart = []
fruits = {"Apple": 5, "Raspberry": 10, "Lemon": 20}

while True:
    if money <= 0:
        print("Thanks for shopping!")
        break
    else:
        player_choice = input(f"Select a fruit {fruits}: ").title()
        if player_choice in fruits:
            if money >= fruits[player_choice]:
                shopping_cart.append(player_choice)
                money -= fruits[player_choice]
                print(f"Shopping cart: {shopping_cart} \nMoney
left: {money}")
            else:
                print("You don't have enough money to make this
purchase.")
        else:
            print("Invalid choice.")
```

16 Right click the file name to bring out the drop down and then click on Run "Filename."



17 Type different inputs to get all the possible outputs of your created program.

```
Select a fruit {'Apple': 5, 'Raspberry': 10, 'Lemon': 20}:lemon
Shopping cart: ['Lemon']
Money left: 30
Select a fruit {'Apple': 5, 'Raspberry': 10, 'Lemon': 20}:lemon
Shopping cart: ['Lemon', 'Lemon']
Money left: 10
Select a fruit {'Apple': 5, 'Raspberry': 10, 'Lemon': 20}:lemon
You don't have enough money to make this purchase.
Select a fruit {'Apple': 5, 'Raspberry': 10, 'Lemon': 20}:raspberry
Shopping cart: ['Lemon', 'Lemon', 'Raspberry']
Money left: 0
Thanks for shopping!

Process finished with exit code 0
```